

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.-8. (Cancelled).

9. (Currently amended) A method to diagnose potential discrepancies in electrical operating characteristics in a three phase electric motor comprising the steps of:

 determining first currents current in each two phases of the electric motor phase with a first set of current sensors;

estimating a first current in a third phase of the electric motor system;

generating determining a first estimate value of motor shaft position;

generating estimating a first estimate value of motor torque using the first system to determine current first currents in each the two motor phase phases and the first estimate value of motor shaft position;

 determining current of each second currents in the two motor phase phases with a second system set of current sensors;

estimating a second current in the third phase of the electric motor;

generating determining a second estimate value of motor shaft position;

generating estimating a second estimate value of motor torque using the second system to determine current second currents in each motor phase and the second estimate value of motor shaft position; and

 comparing the first and second estimates of motor torque.

10. (Original) The method according to claim 9, further comprising the step of notifying a motor operator of a potential discrepancy in electrical operating characteristics.

11. (Currently amended) The method according to claim 9, wherein the step of ~~determining estimating a first current of each motor phase with the first system in a third phase of the electric motor~~ comprises:

~~generating determining a first measured current of in a first phase of the electric motor with a first current sensor;~~

~~generating determining a first measured current of in a second phase of the electric motor with a second current sensor; and~~

~~generating a first estimated current of current in a estimating a first current in the third phase of the electric motor based on the first measured current of currents in the first and second phases of the motor phase and the first measured current of the second phase.~~

12. (Currently amended) The method according to claim 9, wherein the step of generating the ~~estimate first~~ value of motor shaft position is accomplished by using a ~~first~~ Kalman filter.

13. (Currently amended) The method according to claim 9, wherein the step of ~~determining estimating a second current in each the third motor phase with the second system~~ comprises:

~~generating determining a second measured current of in a first phase of the electric motor with a third current sensor;~~

~~generating determining a second measured current of in a second phase of the electric motor with a fourth current sensor; and~~

~~generating estimating a second estimated current of current of in a third phase of the electric motor based on the second measured current of currents in the first phase and the second measured current of the second phase and second phases of the motor.~~

14.-15. (Cancelled).

16. (Currently amended) The method according to claim 9, wherein the step of generating determining a second estimate value of motor shaft position is accomplished by using a resolver.

17. (Currently amended) A system for diagnosing potential discrepancies in electrical operating characteristics in a three phase electric motor comprising:

a controller; and

a control system embodied within the controller for directing the controller to control the steps of determining current first currents in each motor phase with a first system first set of current sensors, generating determining a first estimate value of motor shaft position, generating estimating a first estimate value of motor torque using the first system to determine current currents in each motor phase and the first estimate value of motor shaft position, determining second currents current in each motor phase with a second system set of current sensors, generating determining a second estimate value of motor shaft position, generating a second estimate estimating a second value of motor torque using the second system to determine current in each motor phase currents in each motor phase and the second estimate value of motor shaft position, comparing the first and second estimates of motor torque for discrepancies, and notifying a motorist an operator of a potential discrepancy in electrical operating characteristics.

18. (Currently amended) An automotive vehicle comprising:

a three phase electric motor;

a controller; and

a control system embodied within the controller for directing the controller to control the steps of determining current first currents in each motor phase with a first system first set of current sensors, generating determining a first estimate value of motor shaft position, generating estimating a first estimate value of motor torque using the first system to determine current currents in each motor phase and the first estimate value of motor shaft position, determining second currents current in each motor phase with a second system set of current sensors, generating determining a second estimate value of motor shaft position,

~~generating a second estimate estimating a second value of motor torque using the second system to determine current in each motor phase currents in each motor phase and the second estimate value of motor shaft position, comparing the first and second estimates of motor torque for discrepancies, and notifying a-motorist an operator of a potential discrepancy in electrical operating characteristics.~~